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DIVERTICULUM OF THE FEMALE URETHRA : REPORT OF A CASE

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Diverticulum of the female urethra, being different from that of the male, has been considered to be rare. However, the number of the cases has increased recently because much attention was given to the disease and an excellent roentgenography was introduced. In Japan, only 46 such cases have been reported so far¹⁾²⁾. The purpose of this paper is to report a case of the diverticulum of the female urethra.

REPORT OF A CASE

The case is a 25-year-old housewife, who was admitted to Masuda Red Cross Hospital on December 9th, 1964, complaining of purulent excretion from the urethral outlet and a painless mass at the vaginal vestibulum of 9 months' duration. Her past history was not remarkable, and no delivery was experienced. A slight protrusion of a finger-tip size was noted at 7 o'clock position between the urethral outlet and vaginal outlet. On pressing the anterior vaginal wall, milky pus was discharged from the urethral outlet. Otherwise, no abnormality was found at the external genitalia. No abnormality was revealed on cystoscopy.

On urethroscopy, a round diverticular orifice of a pin point in size was recognized at 7 o'clock position approximately 5 mm inside the urethral outlet. The urethral mucosa was intact. On retrograde urethrography, an urethral diverticulum was clearly demonstrated (Fig. 1 and 2).

Intravenous pyelography was not remarkable. No abnormal finding was obtained with catheterized urine. Gram-positive diplococci were found in the pus from the

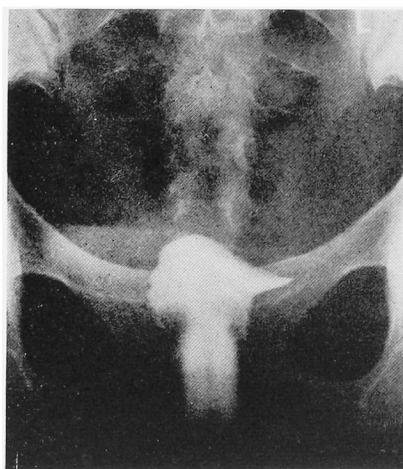


Fig. 1. Retrograde urethrocystogram in back position. Urethral diverticulum is delineated apparently.

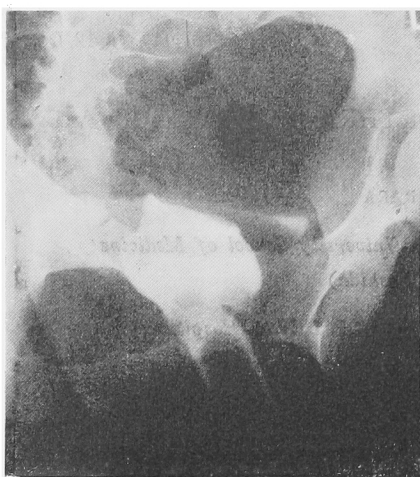


Fig. 2. Retrograde urethrocytogram in left oblique position.

diverticulum. On December 16, 1964, the diverticulum was removed under the lumbar anesthesia. An about 3 cm long midline incision was made from the urethral outlet down to the anterior vaginal wall, associated with an about 1 cm long arcuate incision surrounding the urethral outlet at the right side of the urethral outlet. Then, Nelaton's catheter was inserted into the urethra, and a diverticulum was removed in toto with the most careful manipulation separating the urethra and the diverticulum (Fig. 3). On the second postoperative day, a indwelling urethral catheter was removed. The operative wound healed primarily, and she was discharged from the hospital on

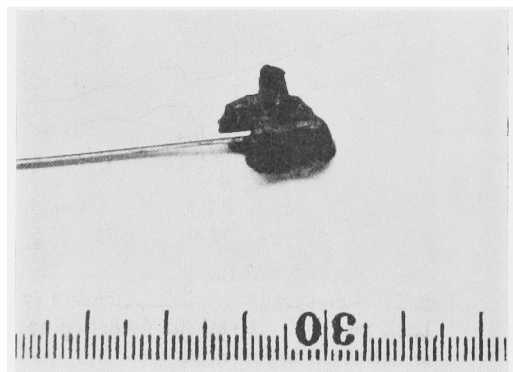


Fig. 3. Specimen removed by operation.

the 7th postoperative day. Histologically, the inner surface of the diverticulum was covered with stratified squamous epithelium, but a portion of it showed erosion without covering epithelium. Inflammatory cell infiltration was shown mainly at the submucosa, but no malignancy was present (Fig. 4, 5 and 6).

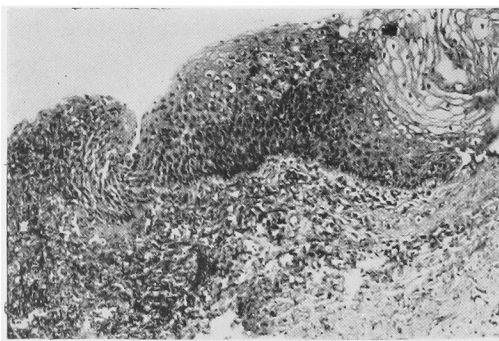
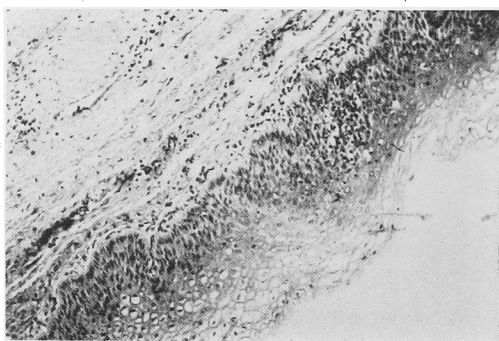


Fig. 4, 5 and 6. Microscopic section of diverticulum shows that the lumen is covered with stratified squamous epithelium. In some portion erosion and submucosal inflammatory cell infiltration is present. No evidence of malignancy.

DISCUSSION

Urethral diverticula include both congenital and acquired ones. The congenital ones are based on embryological malformation, and include remnants of Gärtner's ducts or Wolffian ducts, cysts formed from faulty union of primal folds, embryologic cell rests, vaginal cyst etc³⁾ Therefore, congenital diverticula can be encountered not only in children, but also in adults. They have their anatomical and histological characteristics, but their characteristics may not be apparent in many cases because of secondary infection. The acquired diverticula are caused by trauma (especially childbirth), infection or abscess formation of the urethral glands, instrumental procedure of urethra, urethral stenosis and urethrolithiasis, but its chief factors are childbirth and infection³⁾ In the acquired ones, however, congenital fragility of the urethra and its surrounding tissues may be an important factors, also. Our case did not experience any urological diseases, infection of the urinary pathway and childbirth. In addition, the histological findings may favor the possibility of being the congenital one, although its etiology is uncertain. The disease is encountered mostly between 20 to 50 years old, and only a few cases are reported in children^{1) 4) 5) 6)}

The majority of the reported cases are of married individuals who experienced delivery in the past. As pointed out by many authors, the disease fails to show characteristic symptoms. It may have an asymptomatic course, or may show various symptoms of urethrocystitis. Its predisposing factors include marriage, delivery and gonorrheal infection etc⁵⁾ It is important to note that the disease may develop to

acute or chronic pyelonephritis⁴⁾. Rather, the characteristic findings for diverticulum of the female urethra include a mass at the anterior vaginal wall and purulent excretion from the urethral outlet on pressing the mass, and these findings are recognized in about half of the reported cases^{4) 5)} ^{6) 7)} According to Johnson et al., 16 out of 24 cases show that a lining membrane is composed of squamous, columnar, cuboidal, transitional and stratified squamous epithelial cells, while the other 8 cases fail to show such a membrane, and the inner surface is composed of granulation and fibrous tissues. In general, a complete epithelium is seen only in a few cases, and in many cases the epithelial layer is damaged by infection or inflammation. Complications such as urethritis or cystitis is recognized in the majority of the cases, and some cases are complicated with infection of the upper urinary tracts^{4) 5)} The disease is complicated chiefly with intra-diverticular stone^{5) 8)} and intra-diverticular malignancy⁹⁾. but urethral strictures, pseudomembrane formation of trigone, bladder neck polyp formation, tortuous urethra and bladder neck obstruction etc. are also included⁴⁾. Diagnosis of diverticulum of the female urethra is made with symptoms, inspection, palpation, urethroscopy and roentgenography. So far as their symptoms are concerned, there are no diagnostic symptoms, but the disease shall be suspected when the past history gives chronic repeated urethrocystitis. On inspection, a mass can be recognized at the anterior vaginal wall, on palpation purulent excretion can be obtained from the urethral outlet on pressing the mass. A definite diagnosis can be made when a diverticular orifice is revealed on urethro-

scopy. In general, however, the diverticular orifice is difficult to disclose in many cases⁴⁾⁵⁾. Roentgenography of the diverticulum is extremely important for both diagnosis and treatment, and it includes the following procedures.

- 1) Retrograde urethrography
- 2) Voiding urethrography
- 3) Voiding urethrography with compressing the urethral outlet
- 4) Direct infusion of the contrast medium by puncturing the diverticulum from the anterior vaginal wall
- 5) Method of Krieger-Poutasse or Davis-Cian

In our case, a mass is recognized at the anterior vaginal wall, and purulent excretion is seen from the urethral outlet on pressing the mass. The diverticular orifice is recognized just by opening the urethral outlet with a pincette. Further, the diverticulum is delineated easily just by infusion of the contrast medium from the urethral outlet. Treatment of the disease includes symptomatic and radical ones, and as a rule the radical treatment shall be performed. According to Wharton et al., the symptomatic treatment include incision and drainage of the diverticulum, urethral dilation, diathermy, chemotherapy, electrocautery and drainage per urethrum. This treatment can be done successfully for small diverticulum with a large diverticular orifice, but its therapeutic effect is temporary, causing recidivation. The radical treatment is to remove the diverticular wall in toto. In many cases the diverticular wall is adhered to the surrounding tissue, and reduced to the fragile wall by inflammation. Therefore, if a fragment of the diverticular wall remains at the time of the diverticulectomy the recidivation may occur. Further, a care

must be given not to leave any dead space after the operation, and the urethral and vaginal walls shall be sutured independently. Strong postoperative chemotherapy is helpful for prophylaxis of its recidivation. Postoperative complications include urethrovaginal fistula, incontinence and urethral stricture etc⁴⁾⁵⁾. These complications are connected the location of the diverticulum, but the most careful operation and postoperative management can prevent them.

SUMMARY

The case of a 25-year-old housewife with urethral diverticulum, possibly of a congenital origin, was reported, in which a complete cure was obtained without leaving any complications. A general discussion on the disease was also given.

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女子尿道憩室の1例

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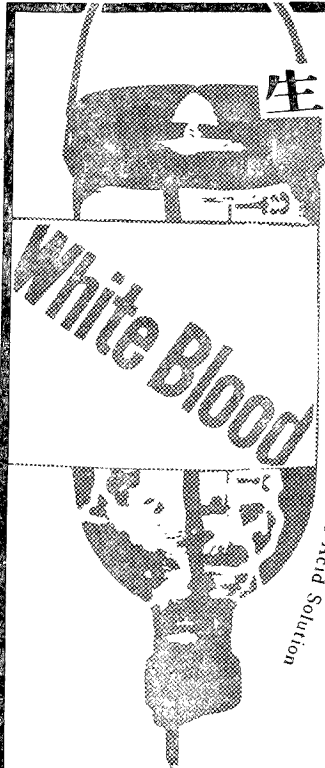
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25歳既婚女子に発生した先天性と考えられる
尿道憩室の1例を経験し、何ら後遺症を残す事

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